

ABSTRACT OF THE DISCLOSURE

A system and method for reducing temperature variation among components in a multi-component system. In this respect, component temperatures are controlled to remain relatively constant (approximately within 5 °C) with respect to other components, while allowing for multiple fluctuating heat loads between components. A refrigeration system possessing a variable capacity (speed) compressor and a thermostatic expansion valve is utilized to control the flow of refrigerant through the refrigeration system. The temperatures of the components are reduced by metering the mass flow rate of the refrigerant cooling the components to compensate for the heat load applied to the refrigeration system. The temperature variation among the components is reduced by supplemental heaters independently providing heat to each respective component. In this regard, any relatively inactive, and therefore relatively cooler, component with respect to other components, may be heated by that component's respective supplemental heater, such that the temperature of the relatively inactive component is not reduced below the specified temperature range.